WHAT IS CLAIMED IS:

1. An isolated polypeptide selected from the group consisting of:

(a) a human MMSC1 polypeptide comprising the amino acid sequence set forth in SEQ ID NO:3;

(b) a mutated human MMSC1 polypeptide obtainable by expression of a mutated form of the nucleic acid set forth in SEQ ID NO:2; and

(c) a mutant human MMSC1 polypeptide which cannot form a complex with a wild-type protein with which wild-type MMSC1 does form a complex.

2. The isolated polypeptide of claim 1 which is a human MMSC1 polypeptide comprising the amino acid sequence set forth in SEQ ID NO:3.

3. The isolated polypeptide of claim 1 which is a mutated human MMSC1 polypeptide obtainable by expression of a mutated form of the nucleic acid set forth in SEQ ID NO:2.

4. The isolated polypeptide of claim 1 which is an isolated mutant human MMSC1 polypeptide which cannot form a complex with a wild-type protein with which wild-type MMSC1 does form a complex.

5. The isolated polypeptide of claim 4, wherein said wild-type protein is MMAC1.

6. The isolated polypeptide of claim 1 which is labeled.

7. The isolated polypeptide of claim 1 in the form of a fusion protein.

8. An isolated protein complex selected from the group consisting of:

(a) a protein complex comprising MMSC1 and MMAC1 and

(b) a protein complex comprising a fragment of MMSC1 and a fragment of MMAC1.

9. The isolated protein complex of claim 8 which is protein complex comprising MMSC1 and MMAC1.

10. The isolated protein complex of claim 9, wherein said MMSC1 contains an alteration.

11. The isolated protein complex of claim 8, wherein said MMAC1 contains an alteration.

12. The isolated protein complex of claim 8 which is a complex of a fragment of MMSC1 and a fragment of MMAC1.

13. The protein complex of claim 12, wherein said fragment of MMSC1 comprises PDZ domain number 7.

14. The protein complex of claim 12, wherein said MMSC1 comprises an alteration.

15. The protein complex of claim 12, wherein said MMAC1 comprises an alteration.

16. The protein complex of claim 13, wherein said MMSC1 comprises an alteration.

17. The protein complex of claim 13, wherein said MMAC1 comprises an alteration.

18. A method for detecting an alteration in *MMSC1* wherein said alteration is associated with cancer in a human, wherein if said alteration is in germline it is associated with predisposition to said cancer and if said alteration is in somatic tissue it indicates that said somatic tissue is cancerous, wherein said method comprises analyzing a *MMSC1* gene expression product from a tissue of said human.

19. The method of claim 18, wherein said expression product is selected from the group consisting of a MMSC1 polypeptide encoded by the *MMSC1* gene.

20. The method of claim 19 wherein one or more of the following procedures is carried out:

(a) immunoblotting;

(b) immunocytochemistry;

(c) assaying for binding interactions between MMSC1 protein isolated from said tissue and a binding partner capable of specifically binding the polypeptide expression product of a *MMSC1* mutant allele and/or a binding partner for the MMSC1 polypeptide having the amino acid sequence set forth in SEQ ID NO:3; and

(d) assaying for the inhibition of biochemical activity of said binding partner.

21. The method of claim 20 wherein said alteration of MMSC1 protein is detected by assaying for binding interactions between said MMSC1 protein isolated from said tissue and MMAC1 protein.

22. A method for detecting an alteration in *MMAC1* wherein said alteration is associated with cancer in a human, wherein if said alteration is in germline it is associated with predisposition to said cancer and if said alteration is in somatic tissue it indicates that said somatic tissue is cancerous, wherein said method comprises analyzing an MMAC1 polypeptide from a tissue of said human by assaying for binding interactions between said MMAC1 polypeptide and MMSC1 or PDZ domain number 7 of said MMSC1.

23. A method for supplying a wild-type *MMSC1* gene function or a MMSC1 function substantially similar to wild-type to a cell which has lost said gene function or has altered gene function by virtue of a mutation in said *MMSC1* gene, wherein said method comprises introducing into said cell a molecule which suppresses a transformed state of said cell, said molecule selected from the group consisting of all or a part of a wild-type MMSC1 polypeptide which is required for non-neoplastic growth of said cell, a polypeptide substanially homologous to said wild-type MMSC1 polypeptide and a molecule which mimics the function of said wild-type MMSC1 polypeptide.

24. A method for diagnosing a predisposition for cancer in a human wherein said method comprises assaying for the ability of MMSC1 or a fragment of MMSC1 from said human to form a complex with a protein to which wild-type MMSC1 binds wherein an inability to form said complex is indicative of a predisposition to cancer.

25. The method of claim 24, wherein said protein is MMAC1.

26. The method of claim 24, wherein said assay comprises measuring *in vitro* a complex formed by mixing said protein and MMSC1 purified from said human.

27. The method of claim 24, wherein said assay comprises measuring *in vitro* a complex formed by mixing MMSC1 and said protein purified from said human.

28. The method of claim 24, wherein said complex is measured by binding with an antibody specific for a MMSC1-said protein complex.

29. The method of claim 24, wherein said assay comprises mixing an antibody specific for a MMSC1-said protein complex with a tissue extract from said person, wherein the lack of formation of a MMSC1-said protein-antibody complex between said antibody and said tissue extract is indicative of a predisposition to cancer.

30. A method for determining whether a mutation in a protein to which MMSC1 binds is predispositive for cancer wherein said method comprises binding said protein with said mutation to a wild-type MMSC1 and determining whether a complex forms, wherein the lack of a complex indicates said mutation is predispositive.

31. A method for determining whether a mutation in *MMSC1* is predispositive for cancer wherein said method comprises binding a MMSC1 with said mutation to a protein to which wild-type MMSC1 binds and determining whether a complex forms, wherein the lack of a complex indicates said mutation is predispositive.